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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GEOFFREY MATTSON

Appeal 2009-003861
Application 10/054,186
Technology Center 2400

Decided: July 15, 2009[1]

Before KENNETH W. HAIRSTON, ROBERT E. NAPPI, and
KARL D. EASTHOM, *Administrative Patent Judges*.

EASTHOM, *Administrative Patent Judge*.

DECISION ON APPEAL

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1-26 (Br. 2).[2] We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Appellant's invention provides a backup LSP (Label Switched Path) to a primary LSP to reroute data packets around at least one failed switching node (i.e., a router, in particular, an LSR (Label Switch Router)) in the primary LSP. LSRs transform a label stack in each data packet by adding (pushing), suppressing (popping), or changing (swapping) labels to control data packet hops to adjacent LSRs in the LSP. The data packet label is used as an index into a table stored in the LSR to specify the next LSR in the path. One of Appellant's backup LSR nodes in a backup LSP applies the same label transformation to the rerouted label stack on the backup LSP as would have been applied on that label stack by a failed LSR ("intermediate label switching node" in claim 1) in the primary LSP. (Abstract; Spec. 1:9-15; 2:1-8; Fig. 1).

Exemplary claim 1 follows:

1. A method of providing backup resources for a primary label switched path (LSP) in a label switching network, the primary LSP having at least a portion for transmitting data packets containing a label stack from a first label switching node to a second label switching node, said portion including at least one intermediate label switching node between the first and second nodes, the method comprising the steps of:
defining at least one backup LSP starting from the first node and merged with the primary LSP at the second node, the at least one backup LSP for re-

[2] Appellant's Brief (filed Feb. 11, 2008) ("Br.") and the Examiner's Answer (mailed Apr. 16, 2008) ("Ans.") detail the parties' positions.

routing data packets around the at least one intermediate label switching node in the event of a failure of the intermediate label switching node;

determining a transformation of the label stack of a packet transmitted along said portion of the primary LSP from an output of the first node to an input of the second node, the transformation including label stack manipulations performed by the at least one intermediate label switching node;
configuring the first node to switch a packet to the backup LSP upon detection of a failure in said portion of the primary LSP; and

configuring at least one node of the backup LSP to process the label stack of any packet transmitted along the backup LSP to apply the same transformation to the label stack on the backup LSP as applied on said portion of the primary LSP so that the label stack received from the backup LSP at an input to the second label switching node corresponds to the label stack received from the portion of the primary LSP at the input of the second label switching node.

The Examiner relies on the following prior art references:

Lee	US 6,904,018 B2	Jun. 7, 2005 (filed Dec. 13, 2000)
Ginjpalli	US 7,120,151 B1	Oct. 10, 2006 (filed Sept. 27, 2001)

The Examiner rejected claims 1-26 as obvious under 35 U.S.C. § 103(a) based on Lee and Ginjpalli.

ISSUE

Appellant's arguments (Br. 5-9) raise the following issue: Did Appellant demonstrate that the Examiner erred in finding that the references collectively teach

> determining a transformation . . . including label stack manipulations performed by the at least one intermediate label switching node [in a primary LSP] . . . and configuring at least

> one node of the backup LSP to process the label stack of any packet transmitted along the backup LSP to apply the same transformation to the label stack on the backup LSP as applied on said portion of the primary LSP

as recited in claim 1?

FINDINGS OF FACT (FF)

Appellant's Disclosure

1. The description of Appellant's invention, *supra*, is designated here as a finding of fact.

2. According to Appellant's Specification, "[t]he simplest transformation is a label swap . . ." (Spec. 3:26-27).

Lee

3. Lee discloses transferring data over LSRs (Label Switching Routers) which transform (swap) input labels in data packets for output labels listed in look-up tables in the LSRs (col. 1, ll. 21-31).

4. Lee discloses a prior art method of ensuring data flow in the event of "a failure in *a node or a link* in the point to point LSP" in which traffic is returned to the traffic source and rerouted over another link (col. 1, ll. 51-54) (emphasis added). Lee's system improves upon the prior art method by protecting multipoint-to-point LSP links (col. 2, ll. 56-61).

5. For example, Lee's method provides a backup path (LSR1, LSR5, LSR7, LSR8) for data normally flowing on another path also comprising switching routers (e.g., LSR1, LSR2, LSR3, LSR4, LSR6 and LSR8) (Fig. 5).

Ginjpalli

6. Ginjpalli also discloses backup LSPs (Label Switched Paths) employing LSRs which communicate with each other. Datagrams (data packets) travel from LSR to LSR based on label stacks stored in the datagrams and transformed by the LSRs during travel. Label stacks and LSRs contain VC (Virtual Circuit) label and tunnel label information. LSRs store such VC and tunnel information corresponding to the datagram label stacks in an LIB (Label Information Base) located in each LSR in order to control the datagram flow from LSR to LSR. (Col. 1, ll. 15-62; col. 2, l. 50 to col. 3, l. 9; Fig. 7.)

> When a failure occurs (e.g., *link failure, node failure*, etc.) and an alternate tunnel LSP is used, the LIB has to be updated. For example, when the link between the LSR 105 and the LSR 110 fails, the LIB of the LSR 105 has to be updated. Typically, this involves rewriting the tunnel labels for all of the VCs that are previously mapped to the outgoing tunnel labels 104 and 204.

(Col. 3, ll. 21-28; Fig. 7) (emphasis added.)

7. Also, when a link failure occurs, for example, between LSR 110 and LSR 115, Ginjpalli's system ensures that LSR 115 receives "*the identical datagram*" (col. 5, l. 30) (emphasis added) from LSR 130 in the backup link as it would have received in the failed primary link from LSR 110. In a specific example, LSR 130 recognizes a backup label 206 on top of the label stack (206 having been pushed onto the stack by LSR 110 to compensate for a failed link downstream from LSR 110) and removes label 206 so that label 106 appears from backup node LSR 130 at LSR 115 just as it normally would have appeared from the LSR 110 had there been no link failure. (Fig. 7; col. 5, ll. 13-35.)

8. Although Ginjpalli's "description refers to path failure and link failure, the method and system disclosed *may also be applied when there is a node failure*" (col. 6, ll. 46-49) (emphasis added).

PRINCIPLES OF LAW

"[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability." *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

Under § 103,

> "there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness" . . . . [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). "'On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness . . . .'" *Kahn*, 441 F.3d at 985-86 (citation omitted).

ANALYSIS

Appellant's arguments (Br. 5-9) reduce to the assertion that the combination of references fails to suggest applying the same label transformation to the rerouted label stack on a backup LSP (Label Switched Path) as would have been applied on that data stack by an intermediate LSR node (i.e., "at least one intermediate switching node" recited in claim 1) in

the primary LSP had the intermediate LSR node not failed.[3] Appellant focuses on an alleged failure of the references to specifically disclose bypassing a failed LSR (i.e., the "intermediate label switching node") in the primary LSP: "Ginjpalli fails to consider this problem because Ginjpalli does not describe a scenario where a LSR is bypassed. Rather, Ginjpalli describes the scenario where only a failed link is bypassed" (Br. 8).

Appellant's arguments are not persuasive. As the Examiner reasoned (Ans. 9-10), Ginjpalli's system specifically applies to "node failure" (FF 6, 8). Lee's system (FF 4, 5; Ans. 3) also teaches bypassing such a failed LSR node. Appellant's arguments fail to address the Examiner's findings that Ginjpalli and Lee each specifically discloses node failures.

As the Examiner reasoned (Ans. 9-11), Ginjpalli's system accounts for transformation in a failed link including a failed node by applying the same label transformation to the rerouted label stack on a backup LSP (Label Switched Path) as would have been applied on that data stack by a failed link in the primary LSP (FF 6-8). That is, according to the Examiner's supported reasoning (*see* Ans. 9-11), Ginjpalli discloses or suggests accounting for the transformation of a failed LSR node in the primary LSP by appropriately transforming labels in the backup LSP (*see* FF 6-8) – so that the "identical datagram" (FF 7; Ans. 10) in the backup LSP arrives as it would have arrived over the primary LSP had there been no failure.

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[3] Appellant's arguments group claims 1-26 together and focus on independent claim 1, with similar arguments nominally including independent claim 14 without distinction. Accordingly, claim 1 is selected to represent claims 1-26. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Appellant's related assertion (Br. 6-7) that Lee's label swapping (*see* FF 3) does not constitute "transforming the label stack so that the packet no longer appears to have traversed the backup LSP" (Br. 7) is also not persuasive, since Appellant's system also transforms label stacks by swapping labels (FF 1, 2). Further, like Appellant's disclosed system (*id.*), Ginjpalli's system transforms datagrams by swapping, pushing, and removing or popping labels (FF 7), so that a label in a backup LSP appears as it would have appeared in the primary LSP as described above. The Examiner's rejection relies on Ginjpalli's modification of Lee, rather than Lee's singular teaching (Ans. 3-4).

Portions of the Examiner's exemplary findings bolstering the above analysis are repeated below:

> *Ginjpalli further notes the importance of returning the label stack to its original state in Column 5, lines 27 - 35. This is an important concept of the invention in Ginjpalli and is not limited to the specific example of the single link failure as well.* It teaches that the backup links are preconfigured to adjust (or "transform") the label stack of the packet to remove any trace of the backup route that it traversed and returned it to the form that label stack would have contained if it had traversed the primary path (the link protection process).

(Ans. 9) (emphasis added).

> *Ginjpalli teaches the importance and the step of transforming a label stack of a packet to be "the identical diagram" from the backup LSP as the diagram would have been if it had traversed the primary path.* (See Column 5, lines 27 - 35). For the diagram to be identical, as stated in Ginjpalli, then the backup LSP must have performed the same changes along the backup path as on the primary path, *this includes any changes that the skipped node would have made to the packet.* So if the backup node diagram is the same as the primary path diagram,

> that backup diagram must have included the same manipulations as the diagram in the primary path would have received, thus meeting the second interpretation of the claim.

(Ans. 10-11) (emphasis added).

Appellant fails to rebut the Examiner's factually supported rationale, which constitutes "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *See KSR*, 550 U.S. at 418 (quoting *Kahn*, 441 at 988). Appellant also has not presented evidence to show that modifying Ginjpalli's link failure system to accommodate node failures within a link or path using the teachings of Lee and Ginjpalli, as proposed by the Examiner, would have been "uniquely challenging or difficult for one of ordinary skill in the art" or "represented an unobvious step over the prior art." *Leapfrog Enters. Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007).

As such, Appellant has not demonstrated that the Examiner erred in rejecting claims 1 and 14, and claims 2-13 and 15-26 not separately argued.

CONCLUSION

Appellant did not demonstrate that the Examiner erred in finding that the references collectively teach:

> determining a transformation . . . including label stack manipulations performed by the at least one intermediate label switching node [in a primary LSP] . . . and configuring at least one node of the backup LSP to process the label stack of any packet transmitted along the backup LSP to apply the same transformation to the label stack on the backup LSP as applied on said portion of the primary LSP

as recited in claim 1.

DECISION

We affirm the Examiner's decision rejecting claims 1-26.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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